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RIte Stats

Analysis of RIte Care Utilization Data

Hospital Inpatient Services in RIte Care

Director's Message

Previous issues of RIte Stats have focused on utilization of services provided in emergency departments (ED), mental health and substance abuse services, and overall utilization patterns. We are now pleased to present the first preliminary analysis of inpatient services provided in RIte Care. Inpatient services are the most expensive services provided in any health care system and the category of care most likely to be affected by timely and appropriate primary care. We hope you will find these results both informative and helpful in your understanding of the medical care provided in RIte Care.

Best regards,

Jane A. Hayward, Director
Department of Human Services

Background

Several recent studies have shown that the principal determinants of preventable hospitalizations (PH) are socioeconomic status, access to primary care, and the prevalence of ambulatory care sensitive (ACS) conditions. [1-2] People who lack access to appropriate primary care are more likely to be hospitalized and, when hospitalized, more likely to experience more severe symptoms. As such, the rate of hospitalization, as well as the intensity of treatment for preventable conditions, is considered a good estimate of the quality of primary care provided in any population.

This issue of RIte Stats focuses on trends in hospitalization among RIte Care members by quarter from July 1998 through the most current data available which covers the period October through December 2001. Inpatient admission rates are trended during that time as well as total hospital days per 1,000 members. Hospitalization rates by age group for the most current calendar year (2001) are viewed and compared to appropriate national benchmarks.

Next we look at the top 15 diagnoses treated in the inpatient setting and again compare RIte Care rates with similarly constructed national and regional rates. Finally, inpatient costs are compared among the major admissions types.

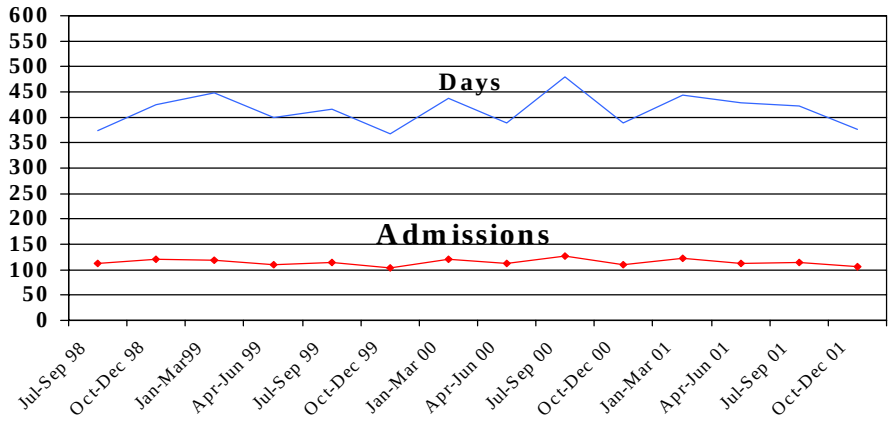
The ultimate purpose of the RIte Care program is to improve the health status of the Medicaid population by providing access to timely and appropriate primary care and, in the process, control the growth in costs to provide services to this population. The inpatient hospitalization rate is an extremely important monitoring activity as we continue to expand the program while assuring the quality of the services provided to existing members. Future issues of RIte Stats will deal with other determinants of adequate primary care.

Admissions

Figure 1 illustrates annualized inpatient admission rates in RIte Care by quarter from July 1998 through December 2001 (Note: quarterly rates are annualized by multiplying by 4). Total hospital days are also depicted in Figure 1 as an annualized rate per 1,000 members. Inpatient days are calculated by subtracting the date of admission from the date of discharge (except that patients that are admitted and discharged on the same day are assigned a length of stay of 1 day).

The hospital admission rate in RIte Care varied from a low of about 104 admissions per 1,000 in October through December 1999 to a high of about 127 per 1,000 in July through September 2000. For most of this time, though, the rate hovered somewhat above or below 115 admissions per 1,000 and was fairly consistent. These rates are extremely comparable to the current national rate of 116.6 admissions per 1,000 in 1999. [3] It should be noted that nationally overall admission rates have declined precipitously since 1980 and have remained under 120 per 1,000 since 1995. [4]

Figure 1. Inpatient Admissions and Total Hospital Days per 1,000 Population by Quarter.
(July-September 1998 through October-December 2001)



Nationally, total hospital days per 1,000 have been decreasing at a much faster pace than admissions. In 1990, for example, there were 784.0 days per 1,000 population nationally while in 1999 the rate was down to 581.1 per 1,000, a reduction of about 35%. [3] Total hospital days in RIte Care have varied between 400 and 450 per 1,000 members for most of the past few years with a high of about 475 per 1,000 during July through September 2000 and a low of about 375 days per 1,000 during October through December 1999. Similarly, the average length of stay in RIte Care is 3.75 which is considerably lower than national rates of about 5.0 days per admissions. [4]

While national rates do not adjust for the precise case-mix found in RIte Care, they do help to establish a context for our analysis. For example, RIte Care rates are more comparable to national benchmarks when adjusting for age, gender, and fertility. (Also, while we cannot expect RIte Care rates to be precisely comparable to national rates, we would not expect them to be significantly higher or lower than national rates either.)

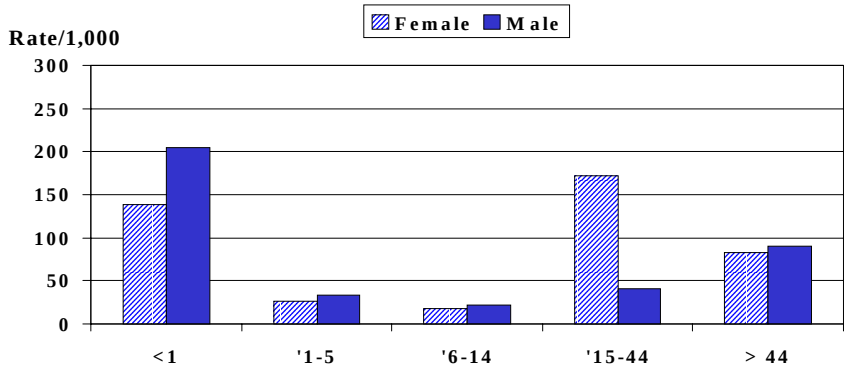
Age Group

Inpatient admission rates by age group and gender are presented in Figure 2. Note that admission rates for infants (age < 1) exclude newborn stays in either normal or special care nurseries (including Neonatal Intensive Care Units). Therefore, the rate of admissions in this age group can be interpreted as admissions for infants not related to childbirth (i.e., if we did not make this adjustment, all infants would have at least one inpatient stay).

Male infants have considerably higher inpatient admission rates than female infants (204 vs. 138). This gender disparity is consistent with national trends although the rates in RIte Care are about 25% lower than national rates

for both males and females. [3] Hospital admission rates are remarkably similar in the 1-5 and 6-14 age groups where the gender disparity essentially disappears.

Figure 2. Inpatient Admissions per 1,000 Population by Age Group and Gender
(Calendar Year 2001)



Note: Admission rates in the infant age group excludes newborn nursery and neonatal intensive care unit stays.

The gender disparity is broadest in the 15-44 age group as women of childbearing age make up such a predominant proportion of the RIte Care population. Inpatient admissions among women in RIte Care are about 170 admissions per year for females 15-44 which is about 30% higher than the national rates. [3] Among males 15-44 in RIte Care, the hospital admission rate of 40 per 1,000 is quite comparable to the national rate of 44.5. [3] Finally, the RIte Care admission rate among males and females over 44 (~ 86 per 1,000) is much lower than the national rate of about 118 per 1,000 and is quite similar for both males and females. [3]

Diagnoses

RIte Care is a program primarily of women of childbearing age and their children so it should come as no surprise that four of the top 15 diagnoses treated in the hospital are for maternal and child health issues (see Figure 3). In fact, the top two diagnostic categories of labor and delivery (including newborn care) make up almost 60% of all hospital admissions in RIte Care. In addition, hospitalizations for complications of pregnancy and treatment for congenital anomalies (number 6 and 14 respectively) are also among the most common diagnoses treated in RIte Care.

On the other hand, mental health diagnoses (including substance abuse), constitute the leading non-maternal and child health reasons for admission to the hospital in RIte Care. During calendar year 2001, 5.6% of all admissions were related to psychiatric disorders while 1.9% were for alcohol and drug abuse. Note that major depression is the most common psychiatric diagnosis and drug abuse is somewhat more common than alcohol abuse in this population.

Among the medical reasons for admissions to the hospital, respiratory (i.e., pneumonia) and digestive diagnoses are the most common (i.e., 4th and 5th respectively) followed by urinary tract infections (7th), asthma (9th) and other infections (10th). Volume depletion (13th), which effects children more than non-elderly adults, is also among the more common conditions treated in RIte Care. Finally, accidental poisonings round out the top 15 diagnoses treated in RIte Care.

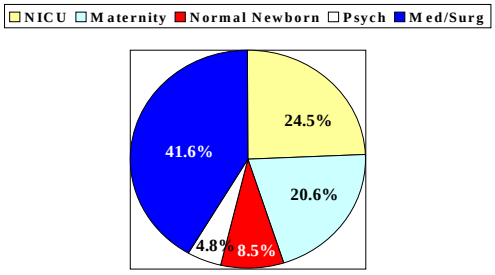
National hospitalization rates are dominated by conditions related to heart disease and neoplasms which affect an older population more intensively than a population similar to RIte Care. [4] As such, the absence of heart disease as a leading cause of hospitalization in RIte Care should not be surprising given the demographics of the population. Otherwise, reasons for hospitalization in RIte Care are comparable to national rates in demographically comparable populations.

Costs

During calendar year 2001, inpatient stays for RIte Care members cost a total of $54,356,790 for hospital facility and ancillary fees (excluding professional services). Medical and Surgical admissions constituted the largest single cost of service (41.6%, see Figure 4). Neonatal intensive care unit (NICU) stays comprised 24.5% of all inpatient care costs followed by maternity and normal newborn care (20.6% and 8.5%) respectively. Finally, psychiatric admissions (including substance abuse) constituted less than 5% of total costs.

Figure 4. Cost of Inpatient Stays by Admission Type

(Calendar Year 2001)



Note: Inpatient costs include only facility fees

Note that NICU stays are the most expensive category of care on a per unit basis. The average NICU stay costs $31,300.00 per stay and averages about 18 days. Medical-surgical stays, on the other hand, average less than 5 days per admission with an average cost per stay of $5,100.00. Maternity stays average about $2,600.00 per admission with an average length of stay of less than 4 days. Normal newborn care is the least expensive per discharge while psychiatric care is the least expensive in the aggregate (4.8% of total costs).

Comparable data on costs of inpatient stays by diagnosis nationally is not available.

Comment

Inpatient admission rates are generally considered reasonable estimates of the availability of primary care services (i.e., high inpatient admission rates are generally found in areas where access to primary care is wanting). RIte Care inpatient admission rates have remained fairly constant over the past several years and clearly within range of national and regional estimates for the general population. Total inpatient days, on the other hand, are much lower in RIte Care than national averages in the general population.

A closer look at RIte Care rates by age and gender suggests that RIte Care rates follow a pattern that is consistent with its case-mix. For example, inpatient admission rates for women 15-44 is higher than national benchmarks reflecting the higher fertility of the RIte Care program. On the other hands, admission rates for children and other adults is much lower than national trends suggesting the benefits of routine primary care. In addition, RIte Care has very few members over 65 so the utilization patterns among the elderly population are clearly not applicable to RIte Care.

Other than maternal and child health admissions, mental health (including alcohol and drug abuse) admissions are among the most common diagnoses treated in inpatient settings for RIte Care members. Other conditions commonly treated among RIte Care members are respiratory symptoms, including pneumonia and digestive diseases such as gastroenteritis. Asthma was the principal ambulatory care sensitive condition appearing among the top 15 diagnoses and accidental poisoning was the only injury related admission appearing in the top 15.

The program spent over $54 million on inpatient admissions for RIte Care members. NICU stays were the most expensive category of service on a per diem basis while medical/surgical stays constituted the largest category of care. Psychiatric services constituted less than 5% of all inpatient costs. Utilization requiring closer scrutiny would include NICU stays, psychiatric stays and admissions related to asthma and other ambulatory care sensitive conditions.

References

1. Epstein AJ. The role of public clinics in preventable hospitalizations among vulnerable populations. Health Services Research 36(2); 2001: p405-420.
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5. Managed Care Business Design: Encounter data business design: Cranston, RI, Department of Human Services: 1996.

Technical Notes

Data for this report were compiled from claims data submitted on UB-92 forms from managed care companies (see Program Description). Inpatient stays are identified through the bill type and revenue code fields on the standardized forms. Diagnoses are all ICD-9 (International Classification of Disease) standardized diagnoses and are based on the primary diagnosis identified for each admission. Secondary diagnoses were not used for this analysis. For the purposes of this report, neonatal intensive care services (NICU) include newborn intensive care services provided at Women and Infants Hospital only. Special care nursery stays at other hospitals were considered normal newborn nursery care. Total hospital days are calculated by subtracting date of admission from date of discharge except in cases where the patient was admitted and discharged on the same date. In such cases, the length of stay is assigned a value of 1. Age is determined based on the date of service. Inpatient stays are assigned a quarter and fiscal year based on the date of admission and all hospital days associated with that admission are assigned to the quarter and fiscal year of the admission date.

Program Description

RIte Care is the State of Rhode Island's managed health care program for families on Medicaid, uninsured families with incomes up to 185% of the Federal Poverty Level (FPL), uninsured pregnant women and children under 19 from families with incomes up to 250% of the FPL. Eligible individuals are enrolled in a managed care organization (Health Plan) which is paid a monthly capitation for providing or arranging health services for members. The program was designed to improve access to health care by providing each member with a 'medical home' in the form of a primary care provider (PCP).

A comprehensive plan for evaluating RIte Care has been implemented by the Center for Child and Family Health. Health Plans are required to submit data to the State on all services provided to members each quarter. These files are edited extensively according to predetermined criteria [5] and become the foundation for most oversight activities. In addition, data are periodically validated against claims and medical records. Other evaluation activities include an annual member satisfaction survey, on-site review of Health Plan policies and procedures, selected focus groups, and a variety of health outcomes research.

RIte Stats is a bimonthly publication of the Center for Child and Family Health and is intended to provide information to the public on the health care provided in the RIte Care Program. It is edited by Bill McQuade, MPH with support from the Center for Child Health staff. Comments and inquiries are encouraged and should be sent to:

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